

IN THE CLAIMS

Please amend claims 1, 12, 16, 21, 26, 31, and 39, and cancel claims 17, 25, 29, and 30. Further, please add new claim 40. The following is a complete listing of the claims, which replaces all previous versions and listings of the claims.

1. (Currently Amended) A parent-bridge, comprised of:
 - a child-link for receiving a plurality of transactions; ~~and~~
 - a transaction identifier communication link for receiving a plurality of transaction identifiers for identifying the plurality of transactions, wherein each of the plurality of transactions is associated with a respective grandchild-link; and
 - a plurality of transaction order queues configured to receive the plurality of transactions from associated with the child-link, wherein each of the plurality of transaction identifiers is uniquely associated with only one of the plurality of transaction order queues and is associated with one of the grandchild-links.
2. (Original) The parent-bridge of claim 1, wherein the transaction identifier communication link comprises the child-link.
3. (Original) The parent-bridge of claim 1, further comprising a transaction buffer associated with the child-link.
4. (Original) The parent-bridge of claim 1, further comprising a plurality of transaction buffers associated with the child-link.

5. (Original) The parent-bridge of claim 2, the child-link further comprising:
 - a plurality of channels;
 - wherein at least one channel of the plurality of channels is used to receive the plurality of transaction identifiers.
6. (Original) The parent-bridge of claim 1, the child-link further comprising:
 - a plurality of child-links; and
 - a plurality of transaction order queues associated with each of the plurality of child-links.
7. (Original) The parent-bridge of claim 1, further comprising:
 - a routing mechanism for routing a transaction with a transaction identifier to a matching transaction order queue.
8. (Original) The parent-bridge of claim 7, wherein each transaction order queue of the plurality of transaction order queues is associated with a transaction order queue identifier uniquely matching a transaction identifier of the plurality of transaction identifiers.
9. (Original) The parent-bridge of claim 7, wherein the routing mechanism routes a transaction with a transaction identifier without a matching transaction order queue to a default transaction order queue.

10. (Original) The parent-bridge of claim 1, wherein the child-link is connected to a bus-bridge.

11. (Original) The parent-bridge of claim 1, wherein the child-link is connected to a bridge-bridge.

12. (Currently Amended) A child-bridge, comprised of:

a plurality of grandchild-links for receiving a plurality of transactions;

a child-link for sending the plurality of transactions received by the plurality of grandchild-links; and

a transaction identifier communication link for sending a plurality of transaction identifiers associated with the plurality of transactions sent on the child-link, wherein each of the plurality of transaction identifiers is uniquely associated with only one the plurality of grandchild-links and only one of a plurality of transaction order queues that receive the plurality of transactions from the child-link.

13. (Original) The child-bridge of claim 12, wherein the transaction identifier communication link comprises the child-link.

14. (Original) The child-bridge of claim 13, the child-link further comprising:

a plurality of channels;

wherein at least one channel is used to send the plurality of transaction identifiers.

15. (Original) The child-bridge of claim 12, wherein at least one of the plurality of grandchild-links is associated with a transaction identifier of the plurality of transaction identifiers.

16. (Currently Amended) The child-bridge of claim 12, wherein ~~the~~ at least two of the plurality of grandchild-links are associated with at least two different transaction identifiers of the plurality of transaction identifiers.

17. (Canceled)

18. (Original) The child-bridge of claim 12, wherein the grandchild-link is connected to a bus.

19. (Original) The child-bridge of claim 12, wherein the grandchild-link is connected to a bus-bridge.

20. (Original) The child-bridge of claim 12, wherein the grandchild-link is connected to a bridge-bridge.

21. (Currently Amended) A method of routing transactions with transaction identifiers, the transactions received by a parent-bridge, the parent-bridge comprising a

child-link and a plurality of transaction order queues for the child-link, comprising the steps of:

receiving a transaction on the child-link, wherein the transaction is associated with a respective grandchild-link;

receiving a transaction identifier for the transaction link, wherein the transaction identifier is indicative of the association of the transaction and the respective grandchild-link;

matching the transaction identifier to a transaction order queue of the plurality of transaction order queues for the child-link, wherein the transaction identifier is uniquely associated with only one of the plurality of transaction order queues such that the respective grandchild-link is uniquely associated with the one of the plurality of transaction order queues via the transaction identifier; and

routing the transaction to the transaction order queue associated with the transaction identifier.

22. (Original) The method of claim 21, wherein the parent-bridge further comprises a transaction buffer for the child-link, further comprising the step of storing the transaction in the transaction buffer.

23. (Original) The method of claim 21, wherein the parent-bridge further comprises a plurality of transaction buffers for the child-link, further comprising the steps of:

matching the transaction identifier to a transaction buffer of the plurality of transaction buffers for the child link;

routing the transaction to the transaction buffer;

storing the transaction in the transaction buffer.

24. (Original) The method of claim 21, wherein the transaction identifier is received on the child-link.

25. (Canceled)

26. (Currently Amended) A method of routing transactions, the transactions received by a child-bridge on a plurality of ~~grand-child-links~~ ~~grandchild-links~~, the child-bridge connected to a parent-bridge, comprising the steps of:

receiving a transaction on a ~~grandchild-link~~ ~~grand-child-link~~;

originating a transaction identifier, wherein the transaction identifier is uniquely associated with the ~~grandchild-link~~ ~~grand-child-link~~ and a transaction order queue of the parent-bridge;

sending the transaction to the parent-bridge; and

sending the transaction identifier to the parent-bridge.

27. (Original) The method of claim 26, wherein the transaction identifier is sent to the parent-bridge on a child-link.

28. (Original) The method of claim 26, wherein the transaction identifier is determined by the grandchild-link on which the transaction was received.

29. (Canceled)

30. (Canceled)

31. (Currently Amended) A computer system, comprising:
a plurality of processors;
a parent-bridge comprising:
a ~~child-link~~ child-link; and
a plurality of transaction order queues connected to the child-link; and
a child-bridge connected via the child-link to the parent bridge and further comprising a plurality of grandchild-links, wherein each of the plurality of transaction order queues is associated with at least one of the plurality of grandchild-links to provide a one-to-one correspondence between the plurality of transaction queues and the grandchild-links.

32. (Original) The computer system of claim 31, further comprising:
a plurality of child-links to a plurality of child-bridges.

33. (Original) The computer system of claim 31, wherein the child-bridge transmits a transaction and transaction identifier to the parent bridge.

34. (Original) The computer system of claim 33, wherein the transaction identifier is associated with a transaction order queue of the plurality of transaction order queues in the parent-bridge.

35. (Original) The method of claim 34, wherein the transaction identifier exclusively identifies a grandchild-link of the plurality of grandchild-links.

36. (Original) The computer system of claim 34, wherein the parent-bridge routes the transaction to the transaction order queue of the plurality of transaction order queues matching the transaction identifier.

37. (Original) The computer system of claim 31, further comprising a transaction buffer connected to the child-link.

38. (Original) The computer system of claim 31, further comprising a plurality of transaction buffers connected to the child-link.

39. (Currently Amended) A computer system, comprising:
a plurality of buses;
a plurality of child-bridges, wherein each of the plurality of child-bridges is coupled to a respective one of the plurality of buses;
a parent-bridge coupled to each of the plurality of child-bridges, wherein the parent-bridge comprises a plurality of transaction order queue sets, wherein each of the

transaction order queue sets corresponds to a respective one of the plurality of child-bridges, and wherein each of the plurality of transaction order queue sets comprises a plurality of transaction order queues, each of the transaction order queues corresponding to at least one of the plurality of buses such that an association between the at least one of the plurality of buses and a transaction received from the at least one of the plurality of buses is maintained at the parent-bridge.

40. (New) The parent-bridge of claim 1, wherein each of the plurality of transaction identifiers is uniquely associated with only one of the grandchild-links.